



**How can Gorbyte Reduce Global Energy Consumption?**

## The problem

Bitcoin is an alternative currency that is gaining popularity all over the world, especially for transferring money person to person. Bitcoin uses miners engaging in a difficult competitive computational process to determine a random “winner” that has the right to collect a reward for “finding a block”. This competition, happens every ten minutes and is becoming more and more difficult.

This technology has generated a global race to faster specialized ASIC (application specific integrated circuit) processors. These processors use electricity for processing and cooling purposes.

In June 2015 Christopher Malmo calculated that the energy cost of a *single* Bitcoin transaction could power 1.5 American homes for a day. That number has increased since then.

Forbes’ contributing writer Peter Kelly-Detwiler writes:

*“While the currency itself is ethereal, Bitcoin and the other crypto-currencies are anchored in the real world, and they have a voracious and growing appetite for electricity. Hundreds of megawatts of power are used in the global production of Bitcoin today. Nobody knows quite how much, since many of the bitcoin ‘miners’ maintain a very low profile and they are spread across the planet. Bitcoin mining operations – essentially massive and powerful datacenters - are located internationally, and usually*

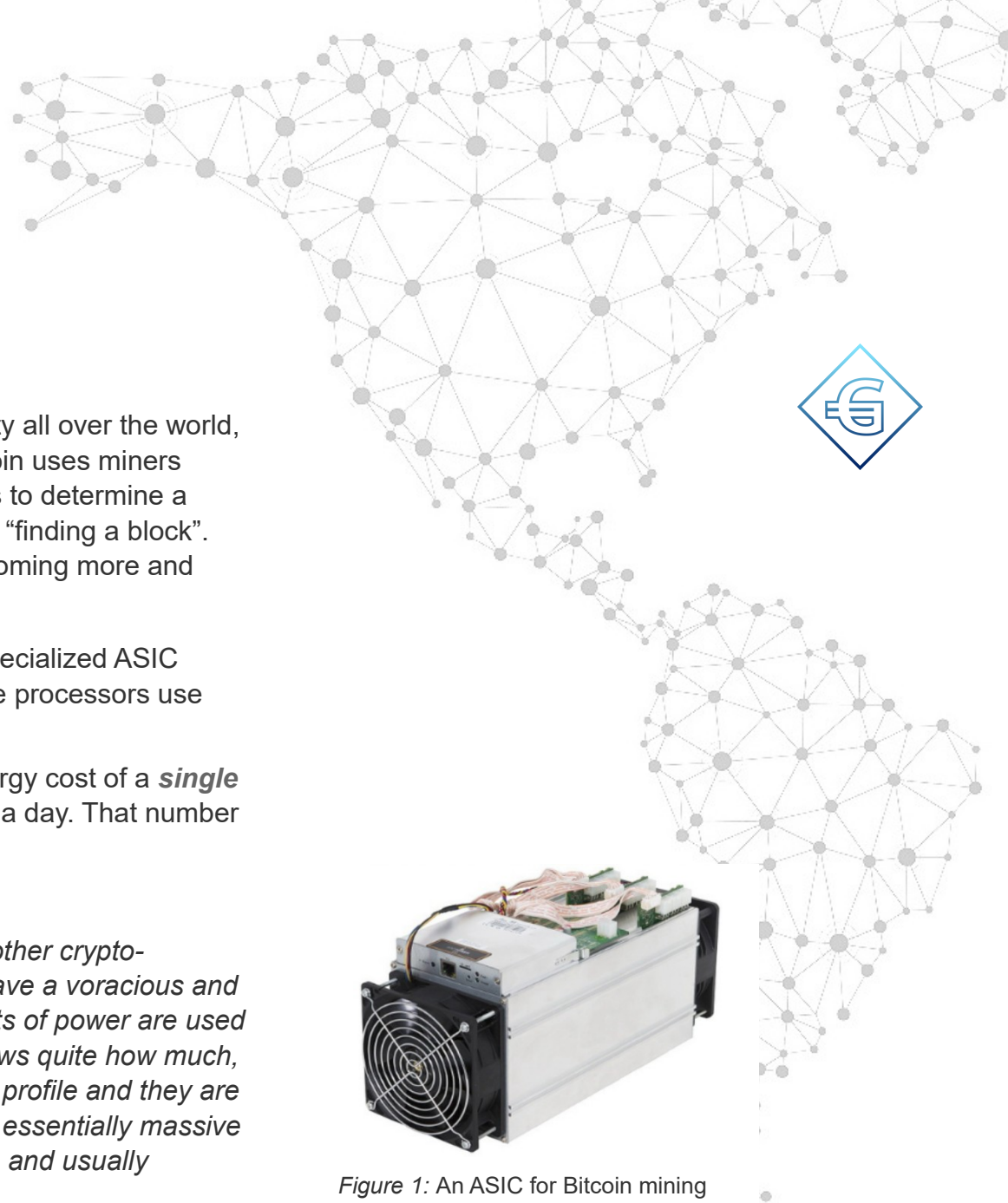


Figure 1: An ASIC for Bitcoin mining

*concentrated where the cost of electricity is cheapest. That's because the cost of electricity can make up 90-95% of total ongoing mining costs.*

*These datacenter mines can be found in numerous countries, from the Republic of Georgia to Iceland, to Malaysia and Venezuela. The largest share of the miners are located in China, close to the border with Tibet where cheap hydropower is relatively abundant.*

*In the old days, individuals could compete. However, mining today generally occurs in dedicated datacenters that may consume tens of megawatts of power.*

*Reuters recently reported an estimate that the computer network dedicated to Bitcoin is 43,000 times more powerful than that of the world's top 500 supercomputers combined. This in turn means more and more electricity consumption.*

*To provide one example, one mine in western Sichuan, China, near Tibet, was reportedly aiming for 12 petahashes (12 quadrillion hashes per second – and the industry is eyeing exa-hash scale capabilities, 1,000x faster) using cheap hydropower - and pulling in an estimated daily haul of \$30,000 net of costs.*

*Not surprisingly, power densities in bitcoin mining centers tend to be significantly higher than traditional datacenters – this is about concentrating the most computer processing power in the least amount of space.”*

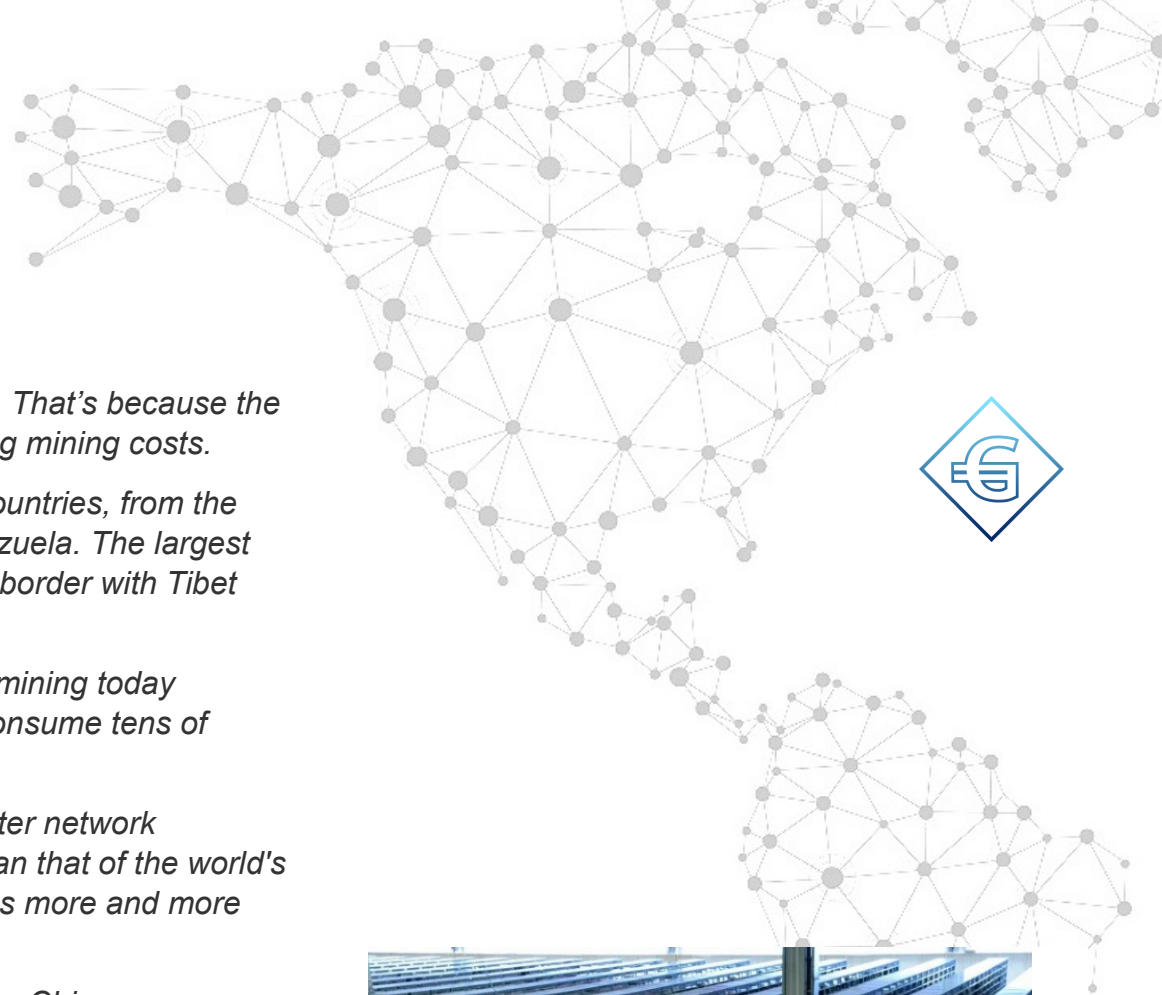


Figure 2: A “mine” of ASIC processors



The Forbes article continues:

*“As a consequence, a tremendous amount of electricity is used for bitcoin mining, although nobody knows exactly how much.*

*Some estimates suggest that by 2020, BitCoin mining could conceivably burn through 14,000 megawatts (MW) of power (about equal to half of New England’s generating capacity, or –put another way - equal to Denmark’s consumption).”*

## **The Gorbyte Solution: No miners**

Because Gorbyte’s distributed consensus process reaches agreement without the use of miners, the network energy consumption drops from hundreds of million of dollars per year to zero. The document “Introduction to Gorbyte” explains how this is done.

Since Gorbyte will run on any device connected to the internet, the cost to users in order to keep a full node operational will be minimal, as most users already keep their internet-connected devices powered-on, several hours per day or most of the time.

## **Conclusion**

The Gorbyte crypto-network, which will use a distributed consensus mechanism that does not require mining, will remarkably reduce energy consumption around the world!